What is claimed is:

1. A method of determining the current status and remaining life of a power source in an implantable neurological tissue stimulator comprising the steps of:

assessing the power source voltage of the power source in an implantable neurological tissue stimulator;

determining, based on the assessed power source voltage, where the power source is in its power source life cycle; and,

taking appropriate action in response to the determination of where the power source is in its power source life cycle.

2. The method of claim 1 wherein the step of assessing the power source voltage is done by connecting the power source to a analog to digital (A/D) converter.

3. The method of claim 1 wherein the step of determining where the power source is in its power source life cycle includes the step of determining the remaining power source capacity.

4. The method of claim 3 further comprising the step of determining, using the determined remaining power source capacity, the remaining life time of the power source.

5. The method of claim 4wherein the step of determining the remaining life time of the power source includes the steps of:

determining the probable usage rate of the power source; and

dividing the determined remaining capacity by the probable usage rate of the power source.

6. The method of claim 4 wherein the step of determining the remaining life of the power source includes the step of determining the probable usage rate of the power source.

7. The method of claim 6 wherein the step of determining the probably usage rate of the power source includes the step of determining the used capacity of the power source.

8. The method of claim 7 wherein the step of determining the probable usage rate of the power source includes the step of dividing the determined used capacity of the power source by the length of time that the implantable neurological tissue stimulator has been working.

9. The method of claim 6 wherein the step of determining the probably usage rate of the power source includes the step of determining the used capacity of the power source since the last time the implantable neurological tissue stimulator was reprogrammed.

10. The method of claim 8 wherein the step of determining the probably usage rate of the power source includes the step of dividing the determined used capacity of the power source since the last time the implantable neurological tissue stimulator was

reprogrammed by the length of time since the implantable neurological tissue stimulator was reprogrammed.

11. The method of claim 1 wherein the step of determining where the power source is in its power source life cycle includes the step of determining the used power source capacity.

Sub Dy Cont

12. The method of claim 1 wherein the step of determining where the power source is in its power source life cycle includes the step of correlating, in a "look-up table", the power source voltage assessed in the step of assessing the power source voltage to a predetermined "power source capacity remaining" value.

13. The method of claim 1 wherein the step of determining where the power source is in its power source life cycle includes the step of correlating, in a "look-up table", the power source voltage assessed in the step of assessing the power source voltage to a predetermined "power source capacity used" value.

14. The method of claim 1 wherein the step of determining where the power source is in its power source life cycle includes the step of determining the power source capacity used and then subtracting this value from the total power source capacity;

whereby, the power source capacity remaining is determined.

15. The method of claim 1 wherein the step of determining where the power source is in its power source life cycle includes the step of determining the power source capacity remaining and then subtracting this value from the total power source capacity;

whereby, the power source capacity used is determined.

16. The method of claim 1 wherein the step of determining where the power source is in its power source life cycle includes the step of calculating, using the power source voltage determined in the step of assessing the power source voltage of the power source in an implantable neurological tissue stimulator, the remaining power source capacity by a formula.

17. The method of claim 16 wherein the step of calculating the remaining power source capacity by a formula includes the step of calculating the remaining power source capacity by using a formula of the form: Remaining Battery Capacity = a constant + a constant multiplied by the power source voltage determined in the step of assessing the power source voltage of the power source in an implantable neurological tissue stimulator.

18. The method of claim 16 wherein the step of calculating the remaining power source capacity by a formula includes the step of calculating the remaining power source capacity by using a non-linear formula.

19. The method of claim 1 wherein the step of determining where the power source is in its power source life cycle includes the step of calculating, using the power source voltage determined in the step of assessing the power source voltage of the power source in an implantable neurological tissue stimulator, the power source capacity used by a formula.

20. The method of claim 19 wherein the step of calculating the remaining power source capacity by a formula includes the step of calculating the remaining power source capacity by using a formula of the form: power source capacity used = a constant + a constant multiplied by the power source voltage determined in the step of assessing the power source voltage of the power source in an implantable neurological tissue stimulator.

21. The method of claim 19 wherein the step of calculating the remaining power source capacity by a formula ~~includes~~ the step of calculating the remaining power source capacity by using a non-linear formula.

22. The method of claim 1 wherein the step of taking appropriate action in response to the determination of where the power source is in its power source life cycle includes the step of informing the user of where in the power source life the power source is.

23. The method of claim 22 wherein the step of informing the user of where in the power source life the power source is includes the step of displaying a representation of the percentage of power source capacity used.

Sub D10

24. The method of claim 22 wherein the step of informing the user of where in the power source life the power source is includes the step of displaying a representation of the percentage of power source capacity remaining.

25. The method of claim 22 wherein the step of informing the user of where in the power source life the power source is includes the step of determining whether the remaining power source capacity falls within a predetermined limit.

26. The method of claim 25 wherein the step of determining whether the remaining power source capacity falls within a predetermined limit further includes the step of alerting the user if the remaining power source capacity falls within a predetermined limit.

27. The method of claim 26 wherein the step of alerting the user if the remaining power source capacity falls within a predetermined limit further includes the step of alerting the user by triggering an alarm.

28. The method of claim 27 wherein the step alerting the user by triggering an alarm includes the step of triggering a alarm chosen from the group consisting of audible or visual warnings.

29. A method of determining the current status and remaining life of a power source in an implantable neurological tissue stimulator comprising the steps of:

assessing the voltage of the power source in an implantable neurological tissue stimulator;

determining, based on the assessed voltage of the power source, where the power source is in its life cycle; and,

taking appropriate action in response to the determination of where the power source is in its life cycle.

30. A device for determining the current status and remaining life of a power source in an implantable neurological tissue stimulator, device comprising:

an implantable neurological tissue stimulator, the implantable neurological tissue stimulator having:

a source of power;

a voltage determining system for determining the voltage of the source of power;

a programmer for creating and processing information to be sent to and received from the implantable neurological tissue stimulator, the programmer including a processor and a memory attached thereto;

a system for communicating information between the implantable neurological tissue stimulator and the programmer;

wherein the a voltage determining system for determining the voltage of the source of power passes the determined voltage of the source of power to the system for communication; and

wherein the system for communication passes the determined voltage of the source of power from the implantable neurological tissue stimulator to the programmer and to the processor, and

wherein the processor determines, based on the determined voltage of the source of power, where the source of power is in its life cycle and takes appropriate action in response to the determination of where the source of power is in its life cycle.

31. The device of claim 30 wherein the processor determines where the source of power is in its life cycle by correlating the determined voltage with a remaining capacity value stored in a "look-up" table.

32. The device of claim 30 wherein the processor determines where the source of power is in its life cycle by correlating the determined voltage with a used capacity value stored in a "look-up" table.

33. The device of claim 30 wherein the processor determines where the source of power is in its life cycle by calculating the remaining capacity in the source of power by using a predetermined formula.

34. The device of claim 30 wherein the processor determines where the source of power is in its life cycle by calculating the used capacity of the source of power by using a predetermined formula.

35. The device of claim 30 wherein the power source is a battery.

36. The device of claim 30 wherein the power source is a capacitor.